Application No. 09/631,271 **Atty Docket No. LTWD 1001-1**

REMARKS

Claims 20-43 were rejected in a Final Official Action on 14 February 2003. No claims have been amended or added in response. Instead, the rejections are respectfully traversed.

Claims 20-43 were rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,986,747 (Moran) in view of US Patent 5,529,657 (Ishii). In paragraph 5, the Examiner asserted that Moran discloses all elements of claim 20, except a radio frequency power oscillator electromagnetically coupled to a space within the chamber.

Applicant respectfully points out that Moran does not include a spectral analyzer comprising a grating and a detector array, optically coupled to the optical window. The Examiner relies on columns 2-4, which include a description in column 3, lines 57-64 of a spectrometer that "can be a grating monochromator or at least one bandpass photon detector or similar apparatus for detecting the energy content of a particular wavelength of the spectrum of the light 133." A specific bandpass photon detector is cross-referenced. Neither a grating monochromator nor a bandpass photon detector comprises the claimed grating and detector array. A monochromator is not an array. A bandpass photon detector operates without a grating. Accordingly, Moran does not teach the claimed grating and detector array.

The Examiner proposes to combine Ishii with Moran. Ishii describes a process chamber 2 that corresponds to Moran's main process chamber 102. Moran is somewhat vague about the details of coupling an RF power supply into the main chamber 102, at column 3, lines 15-22. Ishii is specific, as the Examiner points out, at column 1, lines 37-49, about using a flat coil 7 mounted outside the chamber to form an electromagnetic field in the process chamber 2. On the other hand, at columns 1-2, Ishii acknowledges many unknown factors in using RF induction and an essential need for studies. What Ishii presents is an alternative for supplying RF power into Moran's main chamber 102, not for supplying power into an analysis chamber 122. If Ishii and Moran were combined, Moran's anode 116 and cathode 108 (see column 3, lines 14-16) would be replaced with Ishii's flat coil 7. This combination would not change the operation of the analysis chamber 122; it would only change the operation of the main chamber 102. The size and other characteristics of Moran's analysis chamber 122 are much different from the main chamber 102. Given Ishii's cautions about the need for specific studies before an "RF induction method can be realized," (col. 3, lines 1-10), there is no demonstrated basis for combining Ishii's

main process chamber apparatus with Moran's analysis chamber 122, as opposed to Moran's main process chamber 102.

Analysis of Moran confirms, by omission, that RF induction was not treated as a viable alternative to internal RF voltage electrodes. At column 3, lines 48-52, Moran says, "The RF voltage sustains a discharge 132 that excites the gaseous byproducts in the analysis chamber. Alternatively, the byproducts can be excited by an alternating current (AC) antenna-solenoid coil, a direct current (DC) discharge, or ultraviolet (UV) radiation." Among the four alternatives that Moran suggests for an analysis chamber, as distinct from a main reaction chamber, there is no suggestion of using RF induction or capacitive coupling.

Therefore, claim 20 should be allowable over Moran in combination with Ishii.

Applicant points out that claims 21-23 should be allowable for at least the same reasons as claim 20.

In paragraph 6, the Examiner responds to claim 24 by citing Moran, at column 5, lines 3-6, for an operating pressure of 100 mtorr to 10 torr. However, Moran specifies this as the operating pressure for the main chamber 102 (col. 4, line 67), not the analysis chamber 122. The cited passage does not indicate the operating pressure of the analysis chamber, which is what claim 24 specifies.

In paragraph 6, the Examiner asserted that the adjustment of the plasma light intensity feature, independent of process control, in claims 25 and 26, is taught by Ishii at column 8, lines 43-61. Applicant believe that this misapprehends Ishii. Ishii's transmitting window 74 is a viewport into the process chamber itself, where the process is being carried out. The passage at column 8, lines 50-61, makes it clear that the process itself is being controlled by a controller 77 responsive to an optical sensor 76.

There is no suggestion in Ishii to vary plasma light intensity, either independently of or in conjunction with process control. For these two reasons, claims 25 and 26 should be allowable over the cited art.

In paragraph 7, the Examiner responds to claims 27-29 which specify a sapphire window, relying on Moran. However, Moran makes no mention of sapphire as a material.

Applicant points out that claims 30-33 are allowable for at least the same reasons as claim 20.

In paragraph 7, the Examiner responds to claim 34 by asserting that the claimed features were notoriously old. Contrary to the Examiner's assertion of oldness without any citation, Moran requires 100-200 watts of power for analysis (col. 5, line 22), which does not correspond to use of electrical components to match the electrical characteristics of a plasma to its power supply and efficiently transfer electrical energy into the plasma. (Application, pp. 3-4). Efficient coupling may reduce the energy requirement to 10 to 60 watts, for instance (although this is not recited in the text of the application.) Applicant points out that it is also necessary for the Examiner to motivate application of the feature to an analysis chamber, as opposed to a main processing chamber. The Examiner's reference for coupling through a chamber wall, in Ishii, does not purport to apply to an analysis chamber; it only discusses a main processing chamber.

In paragraph 8, the Examiner responds to claims 35-37, which claim features of an excitation system for an analysis chamber. Again, Ishii does not purport to apply to an analysis chamber; it only discusses a main processing chamber.

Applicant points out that claims 38-43 are allowable for at least the same reasons as claim 20.

CONCLUSION

Applicant respectfully submits that the substitute claims are in condition for allowance and solicits early acceptance of the claims, in light of these remarks. If the Examiner disagrees and sees amendments that might facilitate allowance of the claims, a call would be appreciated.

Should any questions arise, the undersigned can ordinarily be reached at his office at 650-712-0340 from 8:30 to 5:30 PST, M-F and can be reached at his cell phone 415-902-6112 most other times.

Respectfully submitted,

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